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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,632	10/23/2003	Udo Henning Stoewer	244214US41CONT	9162

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EXAMINER

SHARP, JEFFREY ANDREW

ART UNIT PAPER NUMBER

3677

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/690,632

Applicant(s)

STOEWER ET AL.

Examiner

Jeffrey Sharp

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[Handwritten signature]

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

[1] The following Office Action is in response to Applicant's arguments received on 24 September 2004, which were in response to initial Office Action sent 24 June 2004.

Status of Claims

[2] Claims 1-30 are pending.

Response to Arguments

[3] Applicant's arguments over the King Jr. patent (US-3,371,572), with respect to the rejection(s) of claim(s) 1-3, 11, 12, 14 and 15 under 102(b) have been fully considered, but are not persuasive.

As for claims 1-3, 11-12, 14, and 15, the applicant states: "the King Jr. patent fails to teach that the bolt is configured to retain a layer of sealant and to squeeze-out excess sealant so as to obtain an adhesive and sealing layer on the surface." Applicant also states, "the King Jr. patent fails to mention that the locking bolt is configured to retain some sealant to provide an adhesive and sealing layer when the lockbolt is used with a locking collar," maintaining that the aforesaid amended claims are patentably distinct from the prior art.

It is implied to one of ordinary skill in the art, that the King Jr. patent anticipates the retention of at least "some sealant" between the locking bolt and swaged collar, because the invention is "particularly concerned with knurl means for releasing sealant around the locking bolt" (Col 1 lines 39-41), and that such "knurl is effective to provide

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for egress of sealant around said bolt" (Claim 8). It is implicit that in order for sealant to be around the locking bolt, a sealant layer must also reside around the knurled portion, because the knurled portion facilitates the flow of said sealant. King Jr. makes no suggestion that an inherent residual sealant layer would be disadvantageous simply because the flow of the sealant was improved, and thus does not teach away from the scope of the present invention. Rather, King Jr. broadly states that the bolt has knurl means to facilitate the disposal of sealant around the bolt. It was known at the time to King Jr., that fluid pressure may build between the collar and bolt and prevent the collar to be correctly joined to the shaft during swaging, as most sealants are generally incompressible and hinder collar deformation around the knurl (see cited prior art Huck GB 913,759 page 1 lines 61-65).

Therefore, King Jr. explicitly teaches an improvement which "facilitate[s] flow of sealant material so that it will not prevent proper locking of the collar on the bolt" as stated by Applicant, which serves essentially the same function and advantage as stated in Applicant's disclosure (page 4 lines 7-9, 16-18, 25-29). It is further expected by one of ordinary skill in the art (and shown to be possible by Applicant on Page 4 lines 32-33) to acknowledge that just because the flow of excess sealant material is *facilitated* by the grooves of the knurled portion taught by King Jr., does not render the fact that an inherent sealant residue or layer is impossible, nor does it negate the fact that sealant *may still remain* between the collar and around the bolt where there is no displacement (see cited prior art Huck GB-913,759 page 2 line 126 - page 3 line 2, and Ardell US-3,139,786 Col 2 lines 50-54 which were known at the time of the King Jr. patent). It would be nearly

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impossible to ensure the complete elimination of all sealant between the collar and lockbolt by swaging alone, because of tolerances.

With regard to Applicant's quotation of MPEP 2131, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). MPEP 2131.01 also states, "to serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). The abovementioned references support inherency of a sealant layer where King Jr. is silent.

Further, "Language that suggests or makes optional, but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation," MPEP 2106. The amended phraseology "configured to retain a layer of sealant...and squeeze out excess sealant" is deemed analogous to "adapted to retain a layer of sealant...and squeeze out excess sealant," and therefore still reads on the King Jr. patent as being an intended use of which the lockbolt structure taught by King Jr. is inherently capable of doing. There is no reference to a 'collar' within claim 1, and therefore, all arguments concerning the non-ability to retain a layer of sealant between the lockbolt and collar is considered moot.

The shaft of King Jr. may be dipped into a sealant so as to "retain a layer of sealant and obtain an adhesive and sealing layer on said surface." Claims directed to an

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apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). Further, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). See MPEP 2114

[4] Applicant's arguments over the Hurd et al. patent (US-3,459,447), with respect to the rejection(s) of claim(s) 1, 4-8, 10, and 13 under 102(b) have been fully considered and are persuasive. Hurd et al. patent teaches a deformed collar as a sealant, but does not mention a fluid-type or paste-like sealant that would flow as within the scope of Applicant's invention. Therefore, the rejection has been withdrawn. Upon further consideration, new ground(s) of rejection have been made within this Office Action for the aforesaid claims.

[5] Applicant's arguments over the Reynolds patent (US-3,464,472), Huck patent (GB-913,759), and Mosc patent (SU 1567-808A) with respect to the rejection of claim 16 under 102(b) have been fully considered, but are not persuasive.

For the same reasons stated above, a layer of sealant is inherent regardless of whether or not the prior art makes specific mention of what was well-known at the time. A disclosure of improvements in sealant escape does not render sealant retention impossible. The reason that a sealant layer is not visible from a drawing is not sufficient

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to teach away from an inherent residual sealant layer (See King Jr. 3,371,572 Col 4 lines 67-70).

Reynolds teaches "relieving [hydrostatic] pressure by the provision of relief grooves in the collar." (Col 3 lines 9-10) The complete expulsion of all sealant, is not necessary to do this (see Ardell US-3,139,786 Col 2 lines 50-54, which was known at the time of the Reynolds patent and supports Applicant's "thin layer or film between the locking collar and the locking portion" in disclosure Page 4 line 32). Although Reynolds does not teach relief grooves on the shaft, the reference still reads on the instant claim 16 since the "shaft has means (33) for engaging the locking collar with the bolt shaft." The claim does not require the bolt shaft to have relief grooves to force out the sealant. Reynolds uses the collar to enable the squeezing-out of excess sealant.

The Huck reference cannot teach away from an adhesive bond between the bolt shaft and locking collar. Under applicant's own admission in the submitted arguments, "...certain sealants are able to form an adhesive bond....some of those sealants are able to adhesively bond onto the metal material of the locking collar and the lockbolt." Therefore, Huck cannot teach away from an adhesive bond by disclosing only that a sealant remains between the lockbolt and collar after swaging. As far as Applicant's argument that a layer of sealant does not exist with Huck, four layers of sealant are shown in Figure 4 within locking grooves (34). Sealant residing at the bottom of a groove is a layer of sealant.

As for the Mosc reference, a sealant forms an adhesive bond. Adhesion by Webster is defined as "steady or firm attachment". Applicant has not specified that the sealant is an adhesive, and the instant limitation "forms an adhesive bond" is not found to

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be structurally limiting, but rather an intended use of the sealant. See US-5,860,779 to Toosky et al., which teaches joining two metal parts via swaging in combination with an adhesive (Col 4 lines 66-67, Col 5 line 25, Col 8 lines 63-67). See also, Huck page 2 line 91, which anticipates a 'sticky' sealant.

New Grounds of Rejection

Claim Rejections - 35 USC § 103

[6] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[7] Claims 1-5, 7-21, and 23-30 rejected under 35 U.S.C. 103(a) as being unpatentable over King Jr. (US-3,464,472) as discussed above, in further view of Ardell (US-3,139,786).

King Jr. teaches lockbolt comprising a bolt shaft, plurality of grooves, plurality of peaks having a parallelogram shape between the grooves, and a bolt head. The lockbolt could be configured to retain a layer of sealant as well as squeeze out excess sealant and obtain a sealant layer. King teaches the grooves that create the parallelogram (i.e. diamond) shapes to comprise oppositely wound (i.e., clockwise and counterclockwise) helixes.

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King Jr. does not teach axial grooves parallel to the longitudinal of the shank that intersect with grooves extending in a circumferential direction.

Ardell teaches a plurality of axially parallel grooves (10) that extend through and intersect with grooves (3) that extend in both helical and circumferential directions.

These intersections inherently create square-shaped, rectangular shaped, and parallelogram-shaped lands. See Ardell Col 2 lines 57-61 and 70-73.

At the time of invention, it would have been obvious to one of ordinary skill in the art, to provide the embodiments of plural axial relief grooves taught by Ardell (Col 3 lines 1-7), with the bolt structure and teachings of King Jr., to create an improved locking portion comprising diamond, parallelogram, square, and rectangular lands, which effectively serve to 1) expedite the removal of excess sealant from the prior art, 2) allow sealants of greater viscosity to be used, 3) provide a better knurled surface for swaging contact between the bolt shaft and collar, 4) create channels that would facilitate the even distribution of sealant so as to provide a thin sealant layer between the collar and shaft, and 5) to provide more surface area contact for a better adhesive bond between the collar and shaft.

As for claims 8 and 16, a locking collar (King Jr. 34) is engaged with the locking portion (King Jr. 15).

As for claim 10, the grooves open to an outside end of the locking portion (area where breakaway is).

As for claims 11 and 20, axial grooves (10) taught by Ardell are parallel (but can be helical...Col 2 lines 57-61) with respect to the shank axis (i.e. "along an axial direction"), and open to the axial breakaway portion end. See Ardell Col 2 lines 42-46.

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As for claims 12 and 27, King Jr. shows annular circumferential grooves (22) absent the locking portion (24).

As for claims 14 and 29, King Jr. teaches a breakaway portion (20) connected to the locking portion (24).

[8] Claims 6 and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over King Jr. v. Ardell as discussed above, in further view of Neuschotz (US-3,279,519) and Rath (US-4,806,054).

King Jr. v. Ardell teaches all the limitations of the instant claim 17, including inherent square, parallelogram, rectangular, and diamond-shaped lands; however, does not disclose expressly that the lands form a pyramid shape with a four-sided base. Depending on the shape of the grooves taught by King Jr. and Ardell, this could be the case, as 'V'-shaped grooves would yield 4-sided pyramid-shaped lands.

Neuschotz teaches a locking portion comprising axial-extending and circumferentially extending grooves that intersect, and form pyramid-shaped lands having four sides.

Rath teaches that axially extending depressions (grooves) that intersect circumferentially extending grooves, can be any shape without effecting purpose or function (Col. 3 lines 41-45).

At the time of invention, it would have been an obvious matter of design choice, to make the lands taught by King Jr. v. Ardell to be a pyramid shape having four sides as shown by Neuschotz and as held to be possible by Rath, in order to 1) allow some of the sealant to be retained in higher spots than the relief grooves facilitating a sealant layer, 2)

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provide an ornamental aesthetic advantage over the prior art, and 3) to make removal of the collar easier after swaging. Applicant has provided no persuasive data or proven solution to an existing problem that exists in the prior art, which would make lands of 4-sided pyramid shape more useful, or critical to function. Further, at the time of invention, King Jr. v. Ardell would have been expected by those of ordinary skill in the art to perform equally well with pyramid-shaped lands on a locking portion. Had King Jr. and Ardell experimented with 'V'-shaped grooves, they would have found and expected the lands to be of a 4-sided pyramid shape.

Conclusion

[9] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 6,659,699 B2 USPAT Stoewer et al. (Applicant) shows a related invention.

US 20030210969 A1 US-PGPUB Schultz, Dennis

US 20030219327 A1 US-PGPUB Beeles, Edward E et al.

US 20040136810 A1 US-PGPUB Stoewer, Udo Henning et al.

US 6685410 B1 USPAT Allen, Terence P et al.

US 5908277 A USPAT Richards, John F.

US 4197782 A USPAT Champoux, Louis A.

US 3633951 A USPAT Hinkle, Ewan M. et al.

US 2484644 A USPAT JULES POUPITCH OUGLJESA

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US 3464472 A	USPAT	REYNOLDS PERRY J
US 3459447 A	USPAT	WITTMAYER HERBERT M et al.
US 2562516 A	USPAT	WILLIAMS CHARLES R
US 2314898 A	USPAT	PURINTON FORREST G
US 2232336 A	USPAT	FRIEDA MEERSTEINER
US 3421562 A	USPAT	ORLOFF JOHN F et al.
US 4681496 A	USPAT	Fasolino, Gabriel V.
US 3464306 A	USPAT	ORLOFF JOHN F et al.
US 3367228 A	USPAT	KING JR JOHN O
US 0652794 A	USPAT	LOWE, E. L.
US 5375953 A	USPAT	Krug, Juergen et al.
US 3072009 A	USPAT	STAU ELVERT H et al.

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

[10] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (703) 305-2693. The examiner can normally be reached on 7:30 am - 5:00 pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (703) 306-4115. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS



ROBERT J. SANDY
PRIMARY EXAMINER